

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
HILL & SCHUMACHER
87 Falcon Street
TORONTO, Ontario
Canada, M4S 2P4

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing (day/month/year)	08 June 2005 (08-06-2005)
-------------------------------------	---------------------------

Applicant's or agent's file reference
293007P

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/CA2005/000050

International filing date (day/month/year)
18 January 2005 (18-01-2005)

Priority date (day/month/year)
26 January 2004 (26-01-2004)

International Patent Classification (IPC) or both national classification and IPC
G02F 1/133, G09F 3/35, G09F 9/33

Applicant
MACMASTER UNIVERSITY ET AL

1. This opinion contains indications relating to the following items :

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement. |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input checked="" type="checkbox"/> | Box No. VIII | Certain observations on the international application |

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/CA
Canadian Intellectual Property Office
Place du Portage I, C114 - 1st Floor, Box PCT
50 Victoria Street
Gatineau, Quebec K1A 0C9
Facsimile No.: 001(819)953-2476

Authorized officer

Karen Oprea (819) 934-2668

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

[] This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of :
 - a. type of material

[] a sequence listing

[] table(s) related to the sequence listing
 - b. format of material

[] in written format

[] in computer readable form
 - c. time of filing/furnishing

[] contained in the international application as filed.

[] filed together with the international application in computer readable form.

[] furnished subsequently to this Authority for the purposes of search.
3. [] In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statement that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments :

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-5	YES
	Claims None	NO
Inventive step (IS)	Claims None	YES
	Claims 1-5	NO
Industrial applicability (IA)	Claims 1-5	YES
	Claims None	NO

20/587334
IAP5 Rec'd PCT/PTG 20 JUL 2006

2. Citations and explanations :

Reference is made to the following documents:

D1: US 5 164 715 (Kashiwabara et al.) published 17th. of November, 1992 (17.11.1992)

D2: US 5 661 531 (Greene et al.) published 26th. of August, 1997 (26.08.1997)

D3: US 6 369 867 (Ge) published 9th. of April, 2002 (09.04.2002)

D1 discloses a colour display device which comprises a liquid crystal panel wherein any desired number of LCD displays are to be tiled together for controlling the transmission of light. Optical fibers are provided which are fixed to a position on a fiber board, where every red, blue, green colour signal for every pixel assigned through the liquid crystal display panel can be incident, and the other end thereof (of the fiber) is fixed to a corresponding position on the printed board on which respective red, blue, green coloured LEDs are mounted for each respective pixel to have a full colour display by controlling the drive of the aforementioned LEDs. The display brightness is therefore enhanced and better colour quality is achieved.

D2 discloses a tiled panel display that is visually "seamless" under the intended viewing planar conditions. This invention applies to flat panel displays with a backlight. The panel comprises a tiled array of pixels (RGB) wherein these primary colour elements (RGB-red, green, blue) are used. Light used in the LCD (liquid crystal display) is generated in a backlight assembly and projected through the lightvalve (in this case it is the fiber) towards the viewer (planar view plane) which has a pre-selected number of pixels. Brightness of the display is restored by boosting the backlight or increasing the light coupling into the lightvalve plane via the tiled arrays.

D3 discloses a full-colour tiled display which uses at least a set of red, green, blue coloured cathode or light emitting diode backlit liquid crystal display. The red, blue, green LEDs can be operated in a colour sequential mode according to the display signal from the display system electronics. The image signal is divided into three sub-fields, red, green blue (R,G,B) wherein when the LCD displays a red image, the red LED is lighted, when the LCD displays the green image, the green LED is lighted and so on. This enables a full colour image to be displayed. The display brightness and colour quality is therefore enhanced due to backlighting with LED lamps and the need for light absorbing colour filters is eliminated.

I. Novelty

Subject matter of claims 1-5 is deemed to fulfill the requirements of PCT Article 33(2).

continued in Supplemental Box...

Box No. VIII **Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made :

1.0. Claims

Claims 1, 3-5 do not comply with PCT Rule 6.2(b) which requires that technical features mentioned in the claims to be followed by the reference signs relating to those particular features.

Claim 5, line 2 of the claim, the expression “....wherein each light emitting diode...is positioned *close enough*” is vague and lacks clarity within the context of the claim.

2.0. Description

The description does not comply with PCT rule 5 for the following reason:

-the incorporation by reference statement as found on page 1, line 6

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

II. Inventive Step

Subject matter of claims 1-5 is not deemed to fulfill the requirements of PCT Article 33(3).

RE: Claim 1: Document D1 discloses a tiled optical display wherein an array of light emitting diodes are positioned to backlight a liquid crystal display. The array of light emitting diodes includes at least one of red, green and blue wavelength emitting LEDs with a beam of light from each LED being focused onto a pre-selected region of the liquid crystal display. The planar view plane is suggested in document D2, having a predetermined number of pixels. The optical lightguide from each pre-selected region renders obvious the optical coupling to one of the pre-selected number of pixels so that each pixel is then in turn coupled to a red, green and blue light emitting diode. Therefore, provided the combination of D1 and D2, claim 1 of the present application would have been obvious to a person skilled in the art.

RE: Claim 2: The use of optical fibers as the optical lightguide is something that is well known in the art and is also disclosed in document D1.

RE: Claim 3: The tiling together of an optical display for viewing conditions is well known within the art and is also disclosed in document D3. Thereby, combining a plurality of display modules with a planar view plane of at least one other display module is obvious as claimed in view of document D2.

RE: Claim 4: D2 teaches intensity optical fiber coupling being matched to a pre-selected region of a liquid crystal display. Providing the combination of D2 and D1, claim 4 would have been obvious to a someone skilled in the art as it does not define any inventive characteristics over the prior art.

RE: Claim 5: Document D2 discloses that within a tiled display, each pixel is positioned "close enough" (0.2 mm) along the image source plane so that the light beams from each LED does not interfere with light beams from any other light emitting diode, rendering this claim obvious in view of D1.

III. Industrial Applicability

Subject matter of claims 1-5 is deemed to fulfill the requirements of PCT Article 33(4).

Conclusions

ARTICLE 33(2)PCT -NOVELTY

The subject matter of claim 1-5 is considered to be novel in view of the prior art on record, thereby fulfilling the requirements of Article 33(2) PCT.

ARTICLE 33(3)PCT -OBVIOUSNESS

The subject matter of claim 1-5 does not involve an inventive step under Article 33(3) PCT in view of D1-D2-D3.

ARTICLE 33(4)PCT -INDUSTRIAL APPLICABILITY

The subject matter of claims 1-5 are considered to be industrially applicable, hence fulfilling the requirements of Article 33(4) PCT.